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Bulletin de la Sceanee du 5 October, 1844, No. 9, Tome XI.; 2nd Nov., 1844, No. 10, Tome XI.; 15th Dec. and 30th Dec., Nos. 11 and 12, Tome XI.; No. 1, 11th Jan., 1845; No. 2, 1st Feb., 1845; No. 3, 1st March, 1845; No. 6, 7th June, 1845, Tome XII. Presented by the Academy.

Annuaire de l'Academie Royale des Sciences et Belles Lettres de Bruxelles. Onzieme Annuaire, 1845. Presented by the Academy.

Memoir of Simon Stevin. By A. Quetelet. Presented by the Author.

Catalogue of Stars of the British Association for the Advancement of Science. Presented by the Association.

Flora Batava. Nos. 139 and 140. Presented by the King of Holland.

Geological Map of the State of New York. By Legislative Authority. Presented by the State of New York.

13th April, 1846.

Rev. HUMPHREY LLOYD, D.D., President, in the Chair.

John Alcorn, Esq., Abraham W. Baker, Esq., Philip Bevan, M.D., John Oliver Curran, M.B., Matthew D'Arcy, Esq., James Birch Kennedy, Esq., Michael H. Stapleton, M.B., and the Hon. and Rev. William Wingfield, were elected Members of the Academy.

The President, on taking the Chair, delivered the following Inaugural Address:

"GENTLEMEN,—My first—my most urgent duty—on this, to me most solemn occasion, is to thank you for the high distinction you have conferred. It would be idle to attempt to express how highly I esteem the honour: the thought that I had been deemed worthy to

occupy the chair which has been filled by Kirwan, by Brinkley, and by Hamilton, might indeed well nigh overwhelm me, did I not know that there were other merits, more humble than theirs, upon which you set a value—other qualities less dazzling, which may find here their employment and their use. An institution such as this has been compared to the House of Solomon, in Bacon's philosophical fiction, the *New Atlantis*, in which the investigation of Truth is carried on by labourers of various kinds, to each of which he has assigned a separate task. We have had, in this Academy, the representatives of each of these classes: we, too, have had our 'Miners,' our 'Lamps,' and our 'Interpreters of Nature.' I am content to enrol myself in the lowest class; or if, by reason of the high trust which you have now reposed in me, other tasks should fall to my lot, I am proud to accept a new station among the Intellectual Workmen, and to perform the part of one whose office it is to harmonize and give effect to the labours of all.

"There is another personal consideration, to which I cannot refrain from alluding; and yet it is one upon which I hardly trust myself to speak. Among my predecessors in this high office, was one whom I am still more proud to follow:—my nearest relative filled this chair. I know how he was valued here; and I cannot but feel that much of the indulgent estimation which you have formed of my fitness for the same station, has come to me reflected from his memory, and that you hope to find in the son some of these qualities for which the father was loved and honoured.

"But, Gentlemen, whatever qualifications I may want, there is one to which I lay claim: I mean that of deep interest in the welfare of this Body, and zeal for its service. Here I will yield to none; and I console myself with the hope that it may make some amends in your estimation for the many wants which you will hereafter have occasion to observe.

"GENTLEMEN,—My predecessor in this chair, upon an occasion similar to the present, laid before you some of his views respecting the constitution of the Academy, and the means by which its future interests might be promoted. I am sure that you will permit me to follow this precedent, and to offer a few remarks—*firstly*, upon the mixed nature

of that constitution under which we are here united for the Pursuit of Truth,—and, *secondly*, upon the progress that has been made, or that may hereafter be made, in that high object of our incorporation. It is of the *future* that it is important to speak : the precept

“Τὰ μὲν ὀπίσω ἐκτεταγμένοις, τοῖς δὲ ἐμπροσθεν ἐπεκτεινόμενοις”

holds good in the pursuit of knowledge, no less than in the advance in piety. But still our hopes of the Future, if they are to be more than dreamy visions, must be based upon the history of the Past.

“The first thing that must strike every one, in considering the constitution of this Academy, is the comprehensiveness of its scheme, and the wide scope of its labours; and we are inclined to ask, whether a constitution so large and so varied,—so opposed to modern precedent,—can be sound and healthful? When we look into the recent history of Associations for the advancement of knowledge, we see that each division of the wide domain of truth, as it has arisen into prominent view, by the labours of those engaged in its cultivation, has claimed for itself the concentrated energy, and the undivided resources, of an exclusive Society. In this manner the Royal Society of London, which included originally, and still includes, representatives from every department of Philosophy, has seen Society after Society spring up, manned by its own Members, and claiming to perform, in a more complete and effective manner, the separated portions of its work.

“Such a state of things is the natural result of increased activity in any department, and of the consequent demand which it makes of a larger portion of time, and of the other appliances of labour, than can be devoted to it in a body of mixed constitution and more comprehensive plan. Nor can it be doubted that such a multiplication of the instruments, by which Intellectual Force is concentrated and applied, is attended with the many advantages which arise from the *division of labour*, or that it has actually tended, and in a very important degree, to push forward and to extend the boundary which divides the known from the unknown.

“But perhaps these advantages, great as they are, have not been wholly unbalanced. Have we not reason to apprehend that *Philosophy* has suffered, while the portions of her mighty empire have asserted their independence, and erected themselves into separate kingdoms?

So far as we insulate any portion of Truth from the rest, by an exclusive devotion to its pursuit (and there can be no doubt that such exclusiveness tends to insulation,) so far we mutilate the fair proportions of Truth itself, and injure and impair the Philosophic Spirit, whose vital power should animate and pervade the whole. And the injury, great as it is, does not end here. There is an evil partaking of a Moral nature obviously springing from this exclusiveness, and which unhappily we see too often realized, unless where some counteracting power is brought in to check it. I mean its effect in narrowing our views, in rendering us bigots in Philosophy, and in causing us to undervalue that which we do not understand.

“ Now, the mixed constitution of our Society has a manifest tendency to overcome, or, at least, to mitigate, these evils. I do not mean to say that these evils, and these means of combating them, were distinctly perceived by the first founders of this Body. It is an humbling lesson, that Human Institutions, in which we have learned to find wisdom, have often had their origin in circumstance, and their growth amid the adjustments of conflicting interests. The plan of this Academy took its rise, I believe, in the union of two small Societies, calling themselves the *Palæosophers* and the *Neosophers*, starting originally from opposite extremities of the field of Truth. But, whatever may have been its origin, we may now derive from it lessons not only of mutual forbearance, but of mutual instruction. The Mathematician may imbibe from the Antiquarian the taste which will lead him to explore, with reverence, the early history of the efforts of those master-minds in Science, whose very failures are fraught with philosophic interest, and to trace the progress of discovery up to the first dawn of thought; and he will return from the investigation with clearer views of the Human Mind itself, and of the means by which it attains Truth. The Antiquarian may learn from the man of Science those habits of precise thought, and exact reasoning, which, in the mysterious twilight that surrounds the fascinating objects of his pursuit, he is apt to think inapplicable; and both may learn from the cultivator of Literature to value and to acquire that magic power which Language confers upon Thought.

“ Having said thus much in vindication of the constitution of the Academy, suffer me, in the next place, to consider how far it has been

effective in attaining the ends proposed. For this purpose, it will be requisite to take a brief survey of the recent advancement of knowledge in this country, so far as it has been influenced by this Academy. And if, in the brevity with which the necessary limits of this Address compel me to glance over the subject, I should appear to have overlooked, or not to have assigned its due weight to any portion of our labours, you will, I trust, attribute this to its true cause.

“The prominent place which the Mathematical Sciences have occupied in our Transactions, may be dated from the time when Brinkley was enrolled amongst our Members. But it is to the labours of your late President, and your late Secretary, in this department, that the Academy, in a great measure, owes the high place which it holds among the Scientific Bodies of Europe. Of these labours, it might, perhaps, be rash to single out any portion as preeminent, had not the Academy itself, and the Royal Society of London, by the awards of their highest honours, marked out the researches of Sir William Hamilton, and Professor Mac Cullagh, in connexion with the wave-theory of light, as of especial value. The theoretical discovery of Conical Refraction, by Sir William Hamilton, the theory of Crystalline Reflexion and Refraction, by Professor Mac Cullagh, and the general Dynamical Theory of Light by the same author, mark an era in this branch of science not inferior to that of Fresnel.

“Time will not permit me to do more than allude to the new branch of Analysis, which has recently engaged so much of the attention of Mathematicians, and which originated in the Theory of *Quaternions* of Sir William Hamilton, and has received an important modification and development in the *Triplet* theory of Professor Graves. As a member of the University, I rejoice to be able to add, that worthy successors, even to such men as I have named, are arising there; and that the recent union of the mathematical strength of Cambridge and of Dublin, in the *Mathematical Journal* which was so long and so ably supported by the former University, is likely to give a new impulse to this branch of science amongst us. And long may these sciences continue to flourish in the University and in this Academy! Independently of the magnitude and sublimity of their own proper objects,—independently of their direct value in Physical Science, as

instruments of research,—they confer a no less important, but indirect service, in disciplining the Mind, and correcting those tendencies of other portions of our mental constitution, which, when unbalanced, are sure to mislead.

“Turning from the Mathematical to the Physical Sciences,—and first of all to Astronomy, which stands upon the confines of both,—we cannot fail to be struck by the fact, that in this one Island, with all its disadvantages of climate, there are no fewer than *four* Astronomical Observatories, each claiming a high place in the history of European Science; and that while, in other countries, these costly institutions have been, with but few exceptions, founded and endowed by their respective Governments, in Ireland (a country not certainly among the foremost in pecuniary resources) they have been erected, equipped, and, with but one partial exception, maintained by the munificence and public spirit of Individuals. The names of Mr. Cooper, and of the Earl of Rosse, will henceforward be added to those of Provost Andrews and Primate Robinson, as benefactors of science in this country; and Markree and Birr be united to Armagh and Dublin in the future history of Astronomy.

“The Dublin Observatory is the eldest of this noble sisterhood. As respects its connexion with *this* Academy, I need not remind you that its chair has been filled by two of your Presidents. With the labours of Brinkley the Dublin Observatory will always stand connected in the history of Science. I am sure that it is unnecessary for me to remind you of his researches connected with the problem of the “Stellar Parallax,” of which your Transactions contain the first results—that great problem, whose final solution has at length been placed beyond question by the observations of Bessel. Of the other and better known *inequalities*, which affect the apparent places of the stars, all have been illustrated by the observations made with the Meridional Circle of the Dublin Observatory. In this important class of astronomical investigations, the able Director of the Armagh Observatory has had a distinguished share; and the labours of Dr. Robinson have conferred, as might have been expected, increased accuracy upon the resulting values of the Constants.

“And here, Gentlemen, you will permit me to pause for a moment,

and, having named the name of Bessel, to offer a passing tribute to his memory. He, who but a few months since occupied the foremost place in the ranks of living Astronomers, is now no more ! He died on the day which followed the last meeting and Anniversary of this Body ; and those among us who had the happiness to form his acquaintance, during his short visit to England, and to the British Association, four years ago, will be able to sympathize with his personal friends, no less than with the world of science, in deploring his loss.

“ Of the Astronomical and Optical labours of the Earl of Rosse, and of his great reflector—the marvel of astronomical science—it is needless for me to speak. No one who was present when the account of its construction, and of its first achievements, was given in this room by Dr. Robinson, can readily forget it ; and for others, the printed notice of that account, in the last Number of our Proceedings, will give the fullest information we yet possess respecting it. Even from this statement of its earliest trials, it is manifest that the astronomical history of the *nebulae* will, ere long, be re-made ; and it must be satisfactory to us to know, that the noble artist has arranged a plan of systematic observation, directed to these remote and mysterious portions of the universe, which promises to reveal all that can be known, until a still higher optical power (if such be practically possible) shall be applied to their examination. The imagination is bewildered when it seeks to grasp the possible future, which may be opened to this and other departments of Astronomical Science by the application of such means : I will mention but one amongst the many anticipations which press for utterance. The observations of Bessel have detected proper motions in the fixed stars, *Sirius* and *Procyon*, which appear to establish the existence of *invisible companions*, of vast magnitude, about which they revolve. Is the invisibility of these great bodies *relative* only ? and if so, may it not be dispelled before the optical power which Lord Rosse has brought to bear upon the Heavens ?

“ ‘ Astronomy, however,’ to use the words of one whose philosophic mind, and varied and profound acquirements, well entitle him to legislate for science, ‘ is only one out of many sciences, which can be advanced by a combined system of observation and calculation, carried on uninterruptedly. * * * * * in a utilitarian point

of view, the Globe which we inhabit is quite as important a subject of scientific inquiry as the Stars. We depend for our bread of life, and every comfort, on its climates and seasons, on the movements of its winds and waters. We guide ourselves over the ocean, when Astronomical observations fail, by our knowledge of the laws of its Magnetism; we learn the sublimest lessons from the records of its Geological history; and the great facts which its figure, magnitude, and attraction offer to mathematical inquiry, form the very basis of Astronomy itself. Terrestrial Physics, therefore, form a subject every way worthy to be associated with Astronomy as a matter of universal interest and public support, and one which cannot adequately be studied except in the way in which Astronomy itself has been—by permanent establishments keeping up an unbroken series of observation.'

"Two of the leading branches of Terrestrial Physics—the sciences of Meteorology and Magnetism—have now, as you know, for the last six years, been investigated after one uniform and comprehensive scheme, in more than thirty observing stations scattered over the entire globe; and the very bounds of civilization itself have been overleaped in order to give a wider development to the system. In order to realize the view which Sir John Herschel has so often and so ably advocated, it is only necessary to give *permanence* to the more important of these Observatories, and to enlarge somewhat their sphere of labour. All the phenomena of which our Earth, its Ocean, or its Atmosphere, is the seat; the Tides and the Oceanic Currents, no less than the Winds; the temperature of the Earth and of the Sea, as well as that of the Air; the movements of the earth's crust, whether calm or convulsive, no less than the changes of the mysterious power which animates and pervades its mass; all these, and more which might be easily added, are the proper subjects for continued and systematic observation. We have arrived at a period in the history of these branches of science, when the more obvious phenomena have revealed themselves to our desultory efforts, and when the precise laws, and the quantitative measurements, which must form the basis of exact theory, can be reached only by sustained and systematic exertion.

"In these researches, no less than in those of Astronomy, this country has taken its part. The Meteorological Observatory at the Ordnance

Survey office in the Phoenix Park, planned and directed by Captain Larcom, has now been upwards of ten years in active operation, and may be taken as a model for similar establishments. Of the Magnetical and Meteorological Observatory of Dublin, founded in the year 1838 by the University, I have already had frequent occasion to speak at these meetings, and I hope before long to communicate some of the ultimate results.

“Of the Geology of Ireland I have, perhaps, less right to speak, as the subject has been appropriated by another and a younger Society. Yet there are two facts in its recent history of such importance, that it is impossible not to refer to them in noticing the labours of the members of this Academy. I mean the completion of the Geological Map of Ireland by Mr. Griffith, which, as the work of one man, is certainly one of extraordinary merit; and the recent arrangements for the continuation of the Geological Survey of this country, the first fruits of which are before the world in Captain Portlock's able and elaborate Report on the Geology of Londonderry.

“Passing now from the sciences of *Observation* to those of *Experiment*, we here also meet with labourers of our own Body, and our Transactions are enriched with the results of their successful toil. Here are to be found the hygrometric researches of Dr. Apjohn, which have solved one of the most intricate problems in Meteorology; and the still more refined researches of the same author upon the Specific Heats of the Gases, to which you have awarded your medal. Here too are to be found most of the Chemical researches of Sir Robert Kane, upon the chief of which you have conferred a similar reward; and to this body were communicated the first investigations of Dr. Andrews, upon the Heat developed in Chemical Combination, which have recently been honoured with the Royal Medal.

“To remind you of the progress which Natural History has made, and is yet likely to make in this country, I have only to mention the names of Ball, of Thompson, of Mackay, and Harvey, and Allman, whose contributions to the history of the *Fauna* and the *Flora* of Ireland are too well known to need any comment here. The researches of Dr. Harvey, indeed, have embraced a wider range; and his latest work, the *Phycologia Britannica*, now in course of publication, cannot fail to

sustain his high character as a descriptive botanist. As a member of the University, I rejoice to be able to add that, of the distinguished Naturalists just mentioned, four are now connected with her teaching ; and that a large portion of the plan contemplated by her late head, with reference to the advancement of these branches of science within her walls, has now been realized.

“The contributions to the department of Polite Literature, which in the early volumes of our Transactions occupied a large and conspicuous place, have, I regret to say, been of late years less numerous. To whatever cause this may be ascribed, we are the more indebted to such men as Dr. Wall, Dr. Hincks, and Dr. Kennedy Bailie, who have enriched our volumes with the results of their learning and their research. But it would not be difficult to name others, fellow-countrymen and fellow-members, who are qualified to share with them the honour and the toil. The latest communication that we have received in this department,—the paper by Dr. Hincks upon Egyptian Hieroglyphics, the first part of which was recently read,—promises to throw much light upon the deciphering of these ancient and mysterious records, and, if the author be right in his theory, to add considerably to the discoveries of Young and Champollion.

“The study of Antiquities, on the other hand,—and especially of the Antiquities of Ireland,—has never been, and, I hope, never will be, out of fashion here. From the time of Molyneux, and of the Dublin Philosophical Society, the earliest of the learned Societies in Ireland from which we can trace our descent, the pursuit of Irish Antiquities has been a favourite one. Of the researches of our living Antiquaries, the most conspicuous, undoubtedly, is the important work of Mr. Petrie, on the Ecclesiastical Architecture of Ireland, which has been referred to in the recent Report of your Council, and which forms, as you know, the last volume of your Transactions. Of the value of that work we should judge inadequately, were we to confine our view to the light which it has thrown upon the subject discussed ; it is, perhaps, still more valuable as an example of the mode of dealing with Antiquarian questions, and of the evidences which may be brought to bear in their investigation.

“The study of Irish Antiquities will, there can be no doubt, receive

both aid and impulse from the institution of your Museum, a collection well worthy of this Academy, and of this Country. It may be rash in one wholly unacquainted with the subject, as I am, to offer any suggestion respecting it; yet I cannot but think that much more may be done, in advancing our knowledge of Antiquities generally, and especially of that higher department of it which borders so closely upon History,—the distribution of the early races of mankind,—by the comparison of our own Monuments, and other relics of early civilization, with those of other countries. The information we gather from a Cairn, a Torque, or a Spear-head, will then no longer be limited to the light which they may throw upon the arts and manners of our Celtic ancestors. We may obtain from them a knowledge of the geographical distribution of their various tribes, much in the same manner as the geologist recognizes the fragments of one of the great formations which compose the earth's crust by the comparison of their imbedded fossils;—we may approach the history of their families, and trace them up to the parent stock. Studied with this reference, Antiquities may, perhaps in an important degree, tend to advance the science of Ethnology; and be combined with the study of Language, and of Physiological characters, as a new instrument in its research.

“GENTLEMEN,—I fear I have already trespassed too long upon your time. But I desire, before I conclude, to offer a few remarks upon the future advancement of the objects of the Academy, and upon some of the modes by which it may be accelerated.

“The first and chief of these, beyond all question, is *rapid publication*. It is not to be expected that men, who find a reward for their toils in the sympathy with which they are hailed by those engaged elsewhere in the same pursuits—it is not to be expected that they will communicate to us the fruits of those toils, if they should be long withheld from public view. Already there are indications that researches, which should naturally find their place in our Transactions, are about to reach the public through other channels. I trust that this evil may be stayed. The injury that it inflicts is not merely the loss of so much that should add to our credit and our character as a public body, but this very loss itself reacts upon, and augments the evil from which it has sprung. Nor is it necessary for me to urge, that publication is the first,—the main and essential duty of such a body as ours. No matter what

may be the interest of our Meetings,—no matter how far the study of Science, Literature, or Antiquities, may be aided by our Library and our Museum,—it is by our published works that we shall be judged, and by which we must stand or fall. I have only to add, that your Council are duly impressed with this feeling; and that your Officers are at present engaged in the consideration of some measures, which promise to give not only a speedy, but also an increased publicity to our Proceedings.

“Another instrument of progress, to whose efficacy I will advert, and which this Academy may, I think, effectively wield, is the *directing power* which it may reasonably assume, in pointing out to its Members problems of local interest remaining to be solved, and encouraging them to the task by the proposal of Honorary Rewards. The practice of proposing subjects for investigation, and of honouring them by Prizes, has existed, you must be aware, from the very origin of the Academy; and it has tended to elicit researches of considerable interest and value. Some years since, indeed, it was generally felt that the system had failed; and that opinion (in which at the time I shared) led to an alteration in the system of honorary rewards, with which you are of course acquainted. It may be doubted, however, whether this failure was the necessary result of the system itself, and not rather of the nature of some of the topics selected and proposed. It must be manifest, I think, that no encouragement which such a Society as this can bestow, will be likely to stimulate a man of genius to the investigation of an abstruse question, to which he feels no predisposing movement,—that no Reward can usurp the place of Inspiration itself. But there are problems of a different stamp, whose solutions may be expected as the certain result of well-directed labour; to such problems as these, especially when their local character invests them with additional interest, and in some degree prepares men’s minds for the research,—to such problems the recommendation of a learned Society may, with full assurance of the result, direct the attention of its Members. We know how much our knowledge of the Antiquities of this country has benefited by the proposal of such questions. Allow me to suggest one or two of a similar character connected with Physical science, as examples of what may be done in other departments.

“In an interesting paper recently printed in the *Philosophical Magazine*, Colonel Sabine has suggested that the almost unparalleled mildness of the late winter may possibly be explained by an unusual extension of the Gulf-stream, bathing the shores of these Islands, and carrying with it a portion of the high temperature of the tropical region from which it flows. And the probability of this explanation has been augmented by the fact, that in the winter of 1821–2, a winter in many respects resembling the last, this great oceanic current, whose force is usually spent when it reaches the Azores, was actually observed in the neighbourhood of our shores. I have long speculated upon the probable influence of the Gulf-stream upon the Irish winters generally, which appear to be much milder, in comparison with those of England, than can be well accounted for upon the principles of insular climate alone ; and I was glad to see, from Colonel Sabine’s paper, that my conjectures had some real foundation. Whether or not they will account for the fact, may, I think, be easily tested by a series of observations of the temperature of the sea on the Eastern and Western coasts of the Island, and under the same parallel ; and I cannot but think that such a result, throwing so great a light upon the Climatology of this country, would, if established, well reward the labour bestowed in the investigation.

“The Climate of Ireland, indeed, engaged a large share of the attention of the Academy during the life-time of Kirwan ; and several papers on the subject, by himself and others, are to be found in the early volumes of our Transactions. Should the Royal Irish Academy, as I think it ought, take that subject again under its peculiar care, the knowledge of it might be extended and improved, by the observation of the times of the leafing and flowering of certain plants, after the plan suggested and carried out by M. Quetelet of Brussels, and now extensively followed in many parts of Europe. Such observations furnish us with a simple but admirable measure of the *total effects* of all the influential causes in their combination and union.

“Another subject of special inquiry, which might be fitly urged by this Society, is the History of the Tides on the coasts of Ireland. On this subject much has been already done ; but probably much yet remains to be accomplished. Of the observations made in the summer of 1842, by the non-commissioned officers of the Ordnance Survey,

under the direction of Colonel Colby, Mr. Airy, by whom they have been ably discussed in a paper recently printed in the *Philosophical Transactions*, observes, that ‘extent of time alone appears wanting to render them the most important series of tide-observations that has ever been made.’ Among the results to which Mr. Airy has arrived, is the remarkable one, that in the harbour of Courtown, on the coast of Wexford—‘the only place on the earth in which such a result has been distinctly obtained,’—the Solar Tide exceeds the Lunar. Such a result as this, affords not only encouragement to fresh exertion, but also direction as to its application.

“Another, and most interesting subject of research, which this Academy might direct, if not undertake, is that to which attention has been recently drawn by Mr. Mallet,—the movements of the Earth’s crust, whether convulsive and paroxysmal, or gentle and regular. The phenomena of Earthquake shocks in Scotland have been systematically observed for the last five years, at the instance of the British Association, and yearly reports of the results have been made, and published in its Proceedings. Although there appears to be nothing in this country analogous to the local movements at Comrie, in Perthshire, still there is no doubt that Earthquake shocks have been *felt* here; and that more refined methods of observation would detect numberless others, which wholly escape the cognizance of the unaided senses.

“These, and many other investigations, connected with the Physical, the Physiological, and the Monumental history of Ireland, appear to be fitting subjects, if not for the direct labours of this Academy, at least for its encouragement. Science has a right to demand such histories of local phenomena from the representatives of Science in each portion of the civilized globe, and shall this Academy be deaf to the call?

“GENTLEMEN,—I have, at the outset of these remarks, noticed the *moral*, as well as the *intellectual* benefits, which result from the union of different mental powers, such as this Academy presents, combined in the investigation of different portions of Truth. But there is a yet higher principle, to which this union may lead us—a yet holier temper which it may inculcate; I mean the contemplation of Truth itself as essentially ONE, under its many and diversified forms, and the habit of tracing all its varied and refracted rays to its One

and Eternal Source. Strengthened by this high thought,—our feelings raised and spiritualized by this habit,—there is no danger that we shall give place to the weak apprehension (which is but a subtle form of unbelief itself), that any portion of Truth can ever prove inconsistent with any other. And the same principle, while it saves us from slavish *fear*, will also guard us from *presumption*. Standing in the presence of confessed and established truth, we shall feel that we are treading upon holy ground; and we shall demean ourselves, not with the elation and pride of conquest, but with the devotion of worship and of love."

IT WAS RESOLVED,—That the President be requested to permit his Address to be printed in the Proceedings of the Academy.

The Rev. Charles Graves read a paper by Mr. George Boole, of Lincoln, on a Certain Definite Multiple Integral.

It has for some time been known that the evolution of definite multiple integrals can, in many cases, be effected by the employment of discontinuous functions. In illustration of this fact, the author notices the researches of M. Lejeune Dirichlet, founded on the properties of the discontinuous integral $\int_0^\infty \frac{d\phi \sin \phi \cos r\phi}{\phi}$, and those of Mr. Ellis based on Fourier's theorem. In his own investigations he employs the formula of triple integration,

$$\frac{f(x)}{t^n} = \frac{1}{\pi \Gamma(n)} \int_{-\infty}^x \int_0^\infty \int_0^\infty da dv dw \cos \left((a-x)v - tw + n\frac{\pi}{2} \right) w^{n-1} f(a),$$

by the aid of which he deduces the value of the multiple definite integral,

$$v = \iint \dots \frac{dx_1 dx_2 \dots dx_n f\left(\frac{x_1^2}{h_1^2} + \frac{x_2^2}{h_2^2} + \dots + \frac{x_n^2}{h_n^2}\right)}{\{(a_1 - x_1)^2 + (a_2 - x_2)^2 \dots + (a_n - x_n)^2\}^{\frac{1}{2}}},$$

the limits of the integrations being given by the condition